UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

Subject: Class I Well Inspection Report

To: Rebecca L. Harvey, Chief
Underground Injection Control Branch

Date of Inspection: August 25, 1998

Inspectors: Harlan Gerrish and David Werbach

From: David Werbach, Geologist
Underground Injection Control Branch

Facility: Northeastern Exploration, Inc.
Vienna Corners, Michigan

Contact: Kathy Hall

Summary: The Northeastern Exploration Inc. facility appears to be well-run and only a few permit issues were discussed: 1) signature delegation on reports; 2) letter stating Northeastern Exploration has read and is familiar with their permit; and 3) update of the waste analysis plan (WAP).

A. BACKGROUND

Business:
Northeastern Exploration is a commercial Class I and Class II waste disposal facility in Vienna Corners, Michigan. The Class I operations have just recently begun.

Disposal System:
The disposal system consists of one Class I well, which injects into the Dundee Limestone at depths between 2365 and 2710 feet. The injection requires no surface pressure. Injection pressure is normally vacuum, and the permitted maxima is 10 psi.

The annulus of the well is liquid filled. At the surface a fuel oil blanket is used to prevent freezing. Pressure is maintained by means of a small pump which pumps nitrogen from a reserve tank near the wellhead. The annulus pressure is maintained at over 200 psi at the well head.

Monitoring System:
The well has face gauges at the wellhead and both digital and analog systems in the well building. A computer is present in the well building which continiously records the injection pressure, annulus pressure, rate, and volume. Strip charts are also obtained recording the pressures. The alarm system will sound if injection pressure is greater than 10 psi or if the

annulus pressure becomes less than 125 psi, or the specific gravity is over 10.8 lb/gal (approximately 1.3 density).

Alarm System:
Alarms sound for high injection pressure and low annulus pressure. There is not a separate control room for the well, but the alarm sounds in the main office, and is only op[erated when well personnel are on site. The annulus alarm were tested and passed, but the high SG could not be tested without proper fluid present. The injection pressure alarm could not be tested, as the site has no pumps to pressure up the injection fluid. However, the well was operated,and accepted 96 gpm at 0 psi.

Reporting:
The pressures reported on the monthly monitoring report are those which are taken from the periodic gauge readings. Monthly reports contain the following information: 1) The daily maximum and minimum injection pressure readings are reported along with simultaneous injection rate and annulus pressures; 2) the daily minimum differentials between the recorded simultaneous injection and annulus pressures measured; and 3) monthly and cumulative injection volumes. Graphical depictions of this information are also submitted.

B. Results of Inspection
We arrived at about 9:00am and proceeded to inspect the facility almost immediately. The David #1-19 well is located behind the main building, in a small hut. We tried to use the GPS unit to find its location, but were never able to obtain adequate readings. Annulus pressure is measured by a face gauge as well as a computer showing digital read-outs and a strip chart. The face gauge read 203 psi. The injection pressure was 0 psi. The computer registered annulus pressure as 0 psi injection pressure and 203 psi annulus pressure at the same time. The well was shut in.

One issue that arose was that we were unable to find a letter stating Northeastern Exploration has read and is familiar with their permit in their records. We requested Northeastern to send us such a letter as soon as possible.

Monitoring and Reporting
We checked a number of strip charts against the reports. Spot checks indicated that operations are conducted well within permit limits.

Paul Husted has been signing the monitoring reports. There was some uncertainty on whether or not he was the appropriate officer to sign the reports, so we requested Northeastern Exploration to send a letter properly delegating the signatory authority for the reports.

Alarm System:
We tested the alarm system, and noted no problems. The annulus pressure alarm is set to shut off the system at an annulus pressure lower than 125 psi. When the annulus was bled, the alarms went off at 125 psi, both in the

well house and in the main building. The well began injection, and took 96 gpm at 0 psi. For reference, the maximum injection pressure in the permit is 10 psi.

ALARM TESTS

PARAMETER	SET POINT	ALARM POINT	OTHER
INJECTION PRESSURE	10	10	
LOW ANNULUS PRESSURE	125	125	

Well Completion:
No workovers in 1998.

Well Testing:
The last annulus pressure test was performed on May 12, 1998. The Temperature Log were performed on May 12, 1998. The reservoir testing was done on May 12, 1998. The RTS was performed on May 14, 1997.

Shallow Ground Water Monitoring:
None.

Closure Plans:
The latest cost estimate is from December, 1997. The financial assurance is provided by a State trust fund. This was approved on January 15, 1998, and was present at the facility.

Waste Analysis Plan:
The WAP was dated 1995. The latest version in the USEPA files is dated March 9, 1998. We requested that Northeastern Exploration make sure that the latest update of the WAP is present in their files. Sampling records looked fine.

Well Operator Training:
No specific training is provided, as Northeastern has no other business except injection well disposal.

C. Attachments

1. Inspection checklist

Photographs were taken.

WU-16J:10/6/98:dw:g: ...trw\noreast\inspect.898

FIELD INSPECTION COMPLIANCE REPORT

USEPA Region 5
Underground Injection Control Branch

Class I Underground Injection Control Program

Date of inspection: 8/25/98

Date of most recent annual inspection: 5/12/98 (MI)
Date of most recent other inspection: ___________
Describe "other": ___________

Facility Name: Northeastern Exploration, Inc.

Well classification:
Hazardous ________
Nonhazardous X (commercial)

Type of Inspection:
Annual: ____
Special/Qtrly: X
MIT: ____
Other: ____

Number of active wells on site: 1

Active UIC Well Permits No:
MI-119-1I-C002

Permit to Operate:
Issuance Date: April 8, 1997
Effective Date: May 12, 1997
Expiration Date: April 8, 2005

Region 5 inspector: David Worbach

Inspector's signature: [signature]

Facility representative accompanying inspector: [signature]

Photographs taken? Yes X No ___

General Comments: Accompanied by Harlan Gerrish

Permit Limitations/Requirements

Permit Part II(B), III (A)
40 CFR 146.13 or 146.67

Well #	#1-19	Comment #
Max Surface IP	10 psig	
Specific Gravity used in Max IP Calculation	1.3 (?)	alarms set for 1.3
Annulus Pressure	100 psi min	
Differential Pressure	100 psig	

IP=Injection Pressure

Volume Limitation
(e.g. Combined monthly average flow rate, monthly volume, etc.): NA

	Yes	No	C#
Have any UIC permit minor modifications been issued since the last inspection?	X		
Have any UIC permit major modifications been issued since the last inspection?		X	

(If response to either/both questions above is "**Yes**", provide brief description and date of issuance(s) in Comments section below.)

Signatory Certification (40 CFR144.51(k) - Permit Part I(E)(11))

1.	Are reports submitted since the last annual inspection signed and certified by an individual specified in 40 CFR 144.32(a) or by a duly authorized representative of that person?	✓		
2.	For a duly authorized representative, has authorization been made in writing in accordance with 40 CFR 144.32(d)?		✓	Kathy will be signing until authority
3.	If the duly authorized representative has changed, has new authorization been submitted to the director prior to, or together with, any documents required to be signed by an authorized representative?			N/A
4.	Within the timeframe designated in the permits, has the designated signatory submitted certification stating he or she has read and is personally familiar with all terms and conditions of the permit(s)?		✓	Probably not will do

C# = Comment Number.

Current Warning & Shut-Down Set Points			
Well #	#1-19		C #
	W	SD	
High IP	125		
Low DP	10		
Low AP	100		

Field Readings

Permit Parts II(D), III(D)
40 CFR 146.13, 146.68

Required operating parameters, recorded on the day of the inspection, at wellhead gauges, computer, and strip chart(s) are listed on the site-specific form (attached).

Current AP - 203 psi both gauge & electronic

well house checked 3/4 times a day.

Compliance Summary

List violations since previous inspection:

Description of Violation	Date NOV	Date RTC	C#
None			

If applicable, since the previous inspection, has advance written notice of other noncompliance been provided? (Permit Part I(E)(12)(b))

Yes	No	N/A	C#

Well Completion/Construction

Permit Part II(A)
40 CFR 146.12 or 146.65

		Yes	No	C#
1.	Have any planned physical alterations or additions to the facility been implemented since the last inspection (including surface facilities, hydraulic fracturing, or other well stimulation)? If yes, please list below:		X	
	(Inspector: attach most current well diagram to form. Diagram to specify: tubing material, annulus fluid, seal assembly/packer depth, casing shoe depth, liner depth, depth to top of fill, total depth).			
2.	If applicable, were reports of these activities submitted on time?			
3.	If applicable, did the reports contain the required components?			
4.	Was written notice provided to the Director? (Permit Part I(E)(12)(a))			

(Information gathered while onsite during the inspection has been highlighted as shown.)

Mechanical Integrity Testing*

Permit Part I(H)
40 CFR 146.8, 146.13 (b)(3), or 146.68(d)

* Conducted since last annual inspection; includes the following: annulus pressure test (APT), radioactive tracer log (RAT), temperature log, noise log, and oxygen activation log (OA)

Well #	#1-19	Comment #
MIT Plan submittal date	No copy found, but was sent in.	
MIT Plan submitted on time?	Appears yes.	
MIT Plan approval date	4/17/98	
Test Method(s)/Date(s) (Inclusive)	SAPT, Temp log 5/12/98	
MIT plan, including Region 5 field-approved changes, followed?	Yes	
Field approval given to return well to service?	Never lost MI	
MIT report submittal date	6/25/98	
Report submitted on time?	Yes	
Report contains required components?	Yes	
Date of MIT report approval	Not done yet	

Well Workovers*

Permit Part I(E)(12)(a)
40 CFR 146.66(F)-30 days notification

* Since previous inspection

Well #	#1-19	Comment #
WWO Plan submittal date	None in 1998	
WWO Plan approval date		
WWO Plan, including Region 5 field-approved changes, followed?		
Post-WWO Test methods(s)/date(s) (other than MITs)**		
Approval given to return to well service?		
WWO report submittal date		
Report submitted on time?		
Date of report approval		

** Please refer to next page for MIT information

Ambient Pressure Monitoring*

Permit Part II(C)(4)
40 CFR 146.13(d) or 146.68(e)

✳ Conducted since last annual inspection

Well #	#1-19		Comment #
Type of Test✠	PFO		
Plan submittal date	Unknown		
Plan submitted on time?	Yes		
Plan approval date	4/17/98		
Reason for test	permit		
Inclusive dates of testing	5/12/98		
Plan followed?	yes		
Report submittal date	6/25/98		
Report submitted on time?	yes		
Significant change in reservoir parameters since last test?	Unknown at present		
Date of report approval	Not done yet		

✠ PFO = pressure fall-off; I = interference test; SM = static measurement; O = other

Ground Water Monitoring (GWM)

Permit Part
40 CFR 146.13(d)(2); 146.68(e)(2)

	Yes	No	C#
Is ground water monitoring required at this facility?	___	X	___
If yes,			
Do facility reports indicate evidence of contamination of USDW caused by injection activity?	___	NA	___
USDW Well(s)			
Is USDW monitoring required at this facility?	___	X	___
If yes,			
1. Well Number(s)/Name(s) _____			___
2. Most recently reviewed GWM Report: _____			___
3. Most recently approved GWM Report: _____			___
4. Of the reports reviewed:			
a. Was the GWM Plan followed?	___	___	___
b. Were reports submitted on time?	___	___	___
Deep Monitoring Well			
Is deep monitoring required at this facility?	___	X	___
If yes,			
1. Well Number(s)/Name(s) _____			___
2. Most recently reviewed GWM Report: _____			___
3. Most recently approved GWM Report: _____			___
4. Of the reports reviewed:			
a. Was the GWM Plan followed?	___	___	___
b. Were reports submitted on time?	___	___	___
5. Date of last MIT, if applicable _____			___
6. MIT Plan submittal date _____			___
7. Was the MIT plan submitted on time?	___	___	___
8. Test method _____			___
9. Was the MIT Plan, including Region 5 field-approved changes, followed?	___	___	___
10. Date of report or MIT approval _____			___

Corrosion Monitoring (CM)

Permit Part II(C)
40 CFR 146.68(c)

	Yes	No	C#
Is corrosion monitoring (CM) required at this facility?	___	X	___
If yes,			
1. CM Plan followed?	___	___	___
2. Most recently reviewed CM Report: _____			___
3. Most recently approved CM Report: _____			___
4. Of the reports reviewed:			
a. Were reports submitted on time?	___	___	___
b. Do reports contain required components?	___	___	___
c. Were unusual rates of corrosion noted?	___	___	___
5. Date last coupon removal witnessed _____			___

Closure/P&A
&
Post-Closure

Permit Parts I(F) or I(G); and I(I), Part III(B)
40 CFR 146.63, 146.71, 146.72

	Yes	No	N/A	C#
1. Date of most recent closure plan shown during inspection: _____			___	___ Has not closed
2. Is post-closure care required at this facility?	___	___	X	___
If yes, date of most recent post-closure plan shown during inspection: _____				___
3. Most recent closure & post-closure cost estimates				
a. Date submitted 10/18/96			___	
b. Submitted on time?	X	___	___	___
c. Cost of Closure $ $12,000				___
d. Cost of Post-Closure $ NA				___
e. Date USEPA determined closure & post-closure cost estimates acceptable: Permit issuance				___
4. Date of most recent closure & post-closure cost estimate shown during inspection? _____			___	___ Dec 1997
5. Financial Assurance				
a. Type of Mechanism Trust Fund (State)				___
b. Date submitted 1/13/98				___

1/15/98

c.	Submitted on time?	X			
d.	Date of USEPA approval 1/15/98				

6. As applicable, was a copy of the financial assurance mechanism shown during the inspection? X ___ ___ ___

WAP

Permit Parts II(C)(3)
40 CFR 144.52(a)(5), 146.68(a), 146.13(b)(1)

		Yes	No	C#
1.	Has WAP remained accurate?	X		
2.	Are wastestream analyses representative?	X		
3.	Date of latest revision of WAP: 3/9/98			
4.	Was a copy of the plan shown at inspection?	X		(*)

note - 1995 version, not 1998

Waste Stream Analysis

		Yes	No	C#
1.	Have any process or operating changes occurred that may significantly alter the characteristics of the waste stream? **(146.68(a)(2))**		X	

If yes, briefly describe the change ______________________
____
Date changes implemented: ______________________
Date waste stream first sampled after this change: ______________________

2. Choose a wastestream sampling event since the previous inspection. Do onsite records contain the following information **(WAP)**?

a. Sampling events reviewed: Mont Morency / Oscoda Land Fill

		Yes	No	C#
b.	Date sample collected?	X		
c.	"Exact place" of collection?	X		
d.	Time of sampling?	X		
e.	Name of sampler?	X		
f.	Sampling method? (ref. to WAP is acceptable)		X	
g.	A complete Chain of Custody included?	X		
h.	Date of analyses/measurements included?	X		
i.	Were analytical <u>methods</u> listed in records?	X		
j.	Are analytical methods same as those listed in WAP?	X		
k.	Were analytical <u>results</u> listed in records?	X		
l.	Does original submittal from lab match the analytical results listed in MOR?			X
m.	Are all parameters sampled that are specified in WAP?			X

unknown if present commercial - varies

			Yes	No	C#
n.	Do sampling and analysis comply with specifications of the WAP? (Permit Part I(E)(10))		___	___	X
o.	Name/initials of analyst included?		X	___	___
p.	Laboratory that performed analysis identified in records?		X	___	___

uncertain, no updated WAP

Waste Minimization

Permit Part
40 CFR 146.70(d)

		Yes	No	C#
1.	Date of latest executive summary submittal: NA	___	X	___
2.	Date of USEPA written acknowledgement of completeness: _____			___
3.	Is a copy of the waste minimization and treatment plan available for review and inspection?	___	___	___
4.	For facilities disposing of hazardous waste generated on the premises, has certification pursuant to been submitted as required?	___	___	___

Continuous Monitoring/Recording (Historic)

Permit Part II(C)(2)
40 CFR 146.13(b)(2)

		Yes	No	C#
1.	Are continuous monitoring records (e.g. strip charts) retained for each of the months since the previous inspection? List months checked: Oct 97 Dec 97 Nov 98	√	___	___

2. **Continuous Monitoring Records: Permit Limits**
Review continuous monitoring records (e.g. strip charts) for a specified time period, e.g. one month. Choose Permit Parameter (e.g. max IP, DP, min AP, Flow, pH, Specific Gravity, NonOp. Periods, etc.)

Well #: _____ Inclusive Time Period: 1997-98			Well #: _____ Inclusive Time Period: _____		
Parameter	Permit Limitation	Within Permit Limit?	Parameter	Permit Limitation	Within Permit Limit?
d.t.c	1125	(Y) N C# ___	_____	_____	Y N C# ___
_____	_____	Y N C# ___	_____	_____	Y N C# ___
_____	_____	Y N C# ___	_____	_____	Y N C# ___
_____	_____	Y N C# ___	_____	_____	Y N C# ___
_____	_____	Y N C# ___	_____	_____	Y N C# ___
_____	_____	Y N C# ___	_____	_____	Y N C# ___
_____	_____	Y N C# ___	_____	_____	Y N C# ___

Inclusive
Well #: _____ Time Period: _____

Parameter	Permit Limitation	Within Permit Limit?
_____	_____	Y N C# __
_____	_____	Y N C# __
_____	_____	Y N C# __
_____	_____	Y N C# __
_____	_____	Y N C# __
_____	_____	Y N C# __
_____	_____	Y N C# __

Inclusive
Well #: _____ Time Period: _____

Parameter	Permit Limitation	Within Permit Limit?
_____	_____	Y N C# __
_____	_____	Y N C# __
_____	_____	Y N C# __
_____	_____	Y N C# __
_____	_____	Y N C# __
_____	_____	Y N C# __
_____	_____	Y N C# __

According to the records reviewed:	Yes	No	C#
a. Has minimum permitted DP (or AP) been maintained?	✓	___	___
b. Has maximum IP been exceeded?	___	✓	___
c. Are all required parameters monitored continuously?	___	___	___

3. **Continuous Monitoring Records = MOR Values?**
Review continuous monitoring records (e.g. strip charts) for a specified time period, e.g. one month. Choose Permit Parameter (e.g. max IP, DP, AP, Flow, pH, Specific Gravity, NonOp. Periods, etc.)

Inclusive
Well #: _____ Time Period: _____

Parameter	MOR Value	Recorded Value	Acceptable?
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __

Well #: _____ Time Period: _____

Parameter	MOR Value	Recorded Value	Acceptable?
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __

Inclusive
Well #: _____ Time Period: _____

Parameter	MOR Value	Recorded Value	Acceptable?
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __

Well #: _____ Time Period: _____

Parameter	MOR Value	Recorded Value	Acceptable?
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __
_____	_____	_____	Y N C# __

			Yes	No	C#
4.	a.	During periods where continuous monitoring equipment is inoperative, is an appropriate back-up procedure in place?	✓		

b. Please specify method of back-up, frequency of recordings, etc. manual

Date Verified: 8-25-98

5. Are monitoring, calibration, and maintenance records, original charts from continuous monitoring instruments and copies of required reports maintained for at least five years or for the life of the well, whichever is longer (see below)? ___ ___ ___

	Document	Date of Oldest Document	Date Verified *
a.	calibration records		
	pH		
	gauge verification		
	transmitters		
b.	maintenance records		
c.	strip charts (continuous monitoring)		
	Well # ___		
	Well # ___		
	Well # ___		
	Well # ___		

d. Required Reports (The following reports will be verified during various inspections)

Well # ---> Required Rpts.	#1-19	Comments
Oldest MOR		
Date Verified		
Oldest MIT		
Date Verified		
Oldest WWO		
Date Verified		

Well # ---> Required Rpts.	#1-19	Comments
Oldest Ground Water Mon. Rpt.		
Date Verified		
Oldest Corrosn. Monitoring Rpt.		
Date Verified		
Oldest PFO Rpt.		
Date Verified		
Oldest Quarterly Rpt.		
Date Verified		

MOR=Monthly Operating Report; MIT=Mechanical Integrity Test; WWO=Well Workover; Mon.=Monitoring; Rpt.=Report; PFO=Pressure Fall-Off Test
* Visual verification at approximately 5-year interals

Yes No C#

6. a. Are copies of records of all data required to complete the permit application form and any supplemental information required under , maintained for at least five (5) years from the date the application was signed, or the life of the well, as applicable? ___ ___ ___

b. Date Application Signed: _____ ___

7. a. Have records concerning the nature and composition of all injected fluids been retained to date? (required to be retained three years after P&A) ___ ___ ___

Date of Oldest Analysis: _____ ___
Date Verified: _____ ___

Maintenance
(Personnel & Injection System)

Permit Part I(E)(10)
40 CFR 144.51(e)

A. **Personnel**

1. Training required by facility for Class I UIC Personnel:

Type/Name of Training	Job Titles of Trainees	Frequency	Most Recent
No train needed - Full time well operators only			
No other jobs on site			

2. Does this type/amount of training appear adequate for operators? Yes No C# ___
If no, additional training recommended: X

B. **Injection System Maintenance Records**

		Yes	No	C#
1.	General Questions:			
a.	Do maintenance records specify maintenance performed on injection system since previous inspection?	___	___	___
b.	Do maintenance records appear complete?	___	___	___

2. Gauge & Transmitter Calibration or Verification
a. Calibration or verification frequency

	Calibration/ Verification Interval	Tolerance	C#
Gauge	Annually		
Transmitters	Will be Monthly via computer		

Present - when there is a problem. (several times in last year)

C#

b. Specific Gravity Transmitter/Analyzer:
Method of Verification: See chart ___
Interval Between Cleanings: 2-3 times a week ___

c. pH Transmitter/Analyzer:
Interval Between Cleanings: NA ___

Gauge & Transmitter Calibration or Verification

d.

Well # -->	#1-19		
Calibration/ Verification	Last Date	Deviation	C#
Gauge (IP)			

Facility Name: Northeastern Explor
Inspection Date: 8/25/98
Page ___ of ___

Well # -->	#1-19		
Gauge (AP)			
Transmitter (IP)			
Transmitter (AP)			
Transmitter (DP)			
Transmitter (Flow)			
Transmitter (Seal Pot/ Annulus Tank)			
Transmitter (Temperature)			
Transmitter (Specific Grav.)			
Transmitter (pH)			

Calibrated by ~~[illegible]~~ manufacturer - no specific results, sine electronic

IP=Injection Pressure; AP=Annulus Pressure; DP=Injection/Annulus Differential Pressure;

Automatic Warning and Shut Down System

Permit Part II(B)(5)
40 CFR 146.67(f)

Date of Last USEPA Witnessed AWSD Test		
Well # ----->	#1-19	**Comment #**
Date Witnessed	8/25/98	Shut on computer, visual alarm,
Date Approved	8/25/98	

10 am

Annulus level 3' 8½